

# Nanooptics and photonics

## Nanosize defects in arsenic implanted HgCdTe epitaxial films

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In this work, we report on nanostructural defects studies of arsenic implanted HgCdTe heterostructures grown on the GaAs(013) substrate with molecular beam epitaxy. We investigated the as-grown epitaxial films and the films after the ion implantation with energy 190 keV and dose  $10^{12}$ - $10^{15}$  cm<sup>-3</sup>. The microstructure observations were performed in bright field transmission electron microscopy (BF TEM) and high-resolution transmission electron microscopy (HRTEM) modes (Tecnai G2 F20, FEI Company). Thin foils for TEM and HRTEM were cut out using FEI Quanta 200 dual beam focused ion beam (FIB).

Many different structural defects in HgCdTe epilayers have been observed, including dislocations, twins and stacking faults, and precipitates (platelet-shaped and spherical), as well as these induced by foils preparation method. Essential information has been obtained about the nature of the defects observed.